FIGURE 4

ensoBox

Internet

Core Router

Core Node FE Switch

Access Node FE Switch

CFEP1 CFEP2

RADIUS
LDAP
DNS

Cache Engine

Load Balancer

1   2   ...   6

Services Node FE Switch

Network Attached Storage

Remote Access Server

Remote Access Server

PRI/T1/E1
Analog

PRI/T1/E1
Analog

PSTN

Analog Modem Call

subscriber

IP ← PPP[IP] → IP

IP

1. After a subscriber establishes a PPP connection to the ensoBox(TM), he can access ensoServices from his web browser.
2. Authorization to different services is controlled by the LDAP server.
3. Services run on a minimum of two (2) out of six (6) Tatung application servers (SFEPs) for redundancy.
4. Service requests are routed to the Core Router, which in turn routes the request to the Load Balancer.
5. The Load Balancer receives the request and routes the request to the appropriate server (SFEP). Application servers are selected based on processing load and current number of simultaneous sessions already established to the server.
6. After an application server is selected, the subscriber is requested to authenticate with the selected service (email, chat, news, etc.) by entering a userid/password.
7. The application server forwards the userid/password to the LDAP server, which compares it to the userid/passwords in its database.
8. If the userid/password is valid, the subscriber is connected to the application server, otherwise the connection is terminated.
9. Subscriber data is stored on the Network Attached Storage (NAS) device in the Core Node.
10. All Internet requests are re-routed to the cache engine first and served by the cache engine back to the subscriber. If the data on the cache engine is outdated or the cache server engine not contain the data, then the request is forwarded to the Internet.
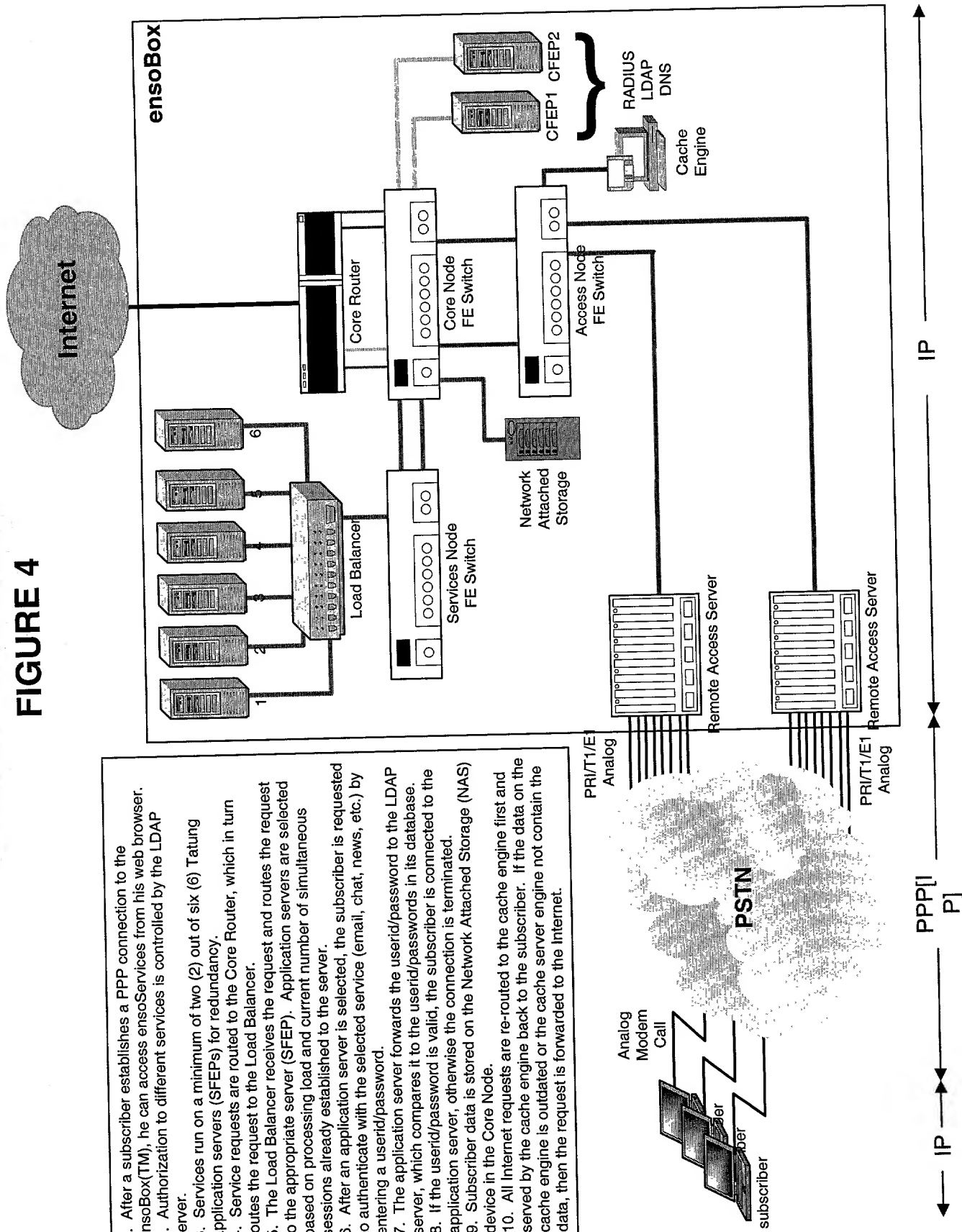
4

FIGURE 5

Franchise LAN
A.B.C.192/26

Internet

Access Node

A.B.C.137/26
aups1

A.B.X.243/29
ace1

A.B.C.189/26
acon1
bsw1

A.B.X.241/26
A.B.X.242/24
acserv1
Modem Pool 1 - A.B.X.2/24 - A.B.X.241/24

A.B.Y.242/24
acserv2
Modem Pool 2 - A.B.Y.2/24 - A.B.Y.241/24

Cisco 2621 Router Interfaces
FE 0/0 - A.B.C.1/26
FE 0/1 - A.B.C.65/26
E 1/0 - A.B.C.129/26
E 1/3 - A.B.C.193/26
E 1/1 - A.B.X.1/24
E 1/2 - A.B.Y.1/24

- Services VLAN 100
- Management VLAN 200
- Core VLAN 300
- Franchise VLAN 400
- Members VLAN 500

Core Node

WAN (SQ)
crtr1

FE 0/0 FE 0/1 1/0 E 1/1/2 E 1/3

A.B.C.192/26
ccon1

cdsk1
sdsk1

Tape Jukebox

cbu1

CFEP VIPs
DNS - A.B.C.74/26
DNS - A.B.C.75/26
RADIUS - A.B.C.76/26
RADIUS - A.B.C.77/26

A.B.C.8/26

A.B.C.9/26

A.B.C.1.0/26
csw1

A.B.C.188/26
cpc1

A.B.C.134/26
cups1

cfep1
AAA/DNS

cfep2
AAA/DNS

Services Network (GREEN) - A.B.C.0/26 (FE 0/0)
Management Network (YELLOW) A.B.C.128/26 (E 1/0)
Franchise Network (BLUE) - A.B.C.192/26 (E 1/3)
Members 1 Network (RED) - A.B.X.0/24 (E 1/1)
Members 2 Network (RED) - A.B.Y.0/24 (E 1/2)

Services Node

A.B.C.130/26
sups1

A.B.C.132/26
scon1

A.B.C.188/26
ssw1

A.B.C.143/26

Mgmt

CS-50
sload1

A.B.C.2/26
sfep1

A.B.C.3/26
sfep2

A.B.C.4/26
sfep3

A.B.C.7/26
sfep6

A.B.C.6/26
sfep5

A.B.C.5/26
sfep4

CS-50 Public VIPs
VLAN2 - A.B.C.10/26
Mail (SFEP1/2) - A.B.C.11/26
Web (SFEP3/4) - A.B.C.12/26
Chat (SFEP5/6) - A.B.C.13/26
News (SFEP1) - A.B.C.14/26

5

FIGURE 6